PROJECT NUMBER: 2307
PROJECT TITLE: Flavor Investigation/Nonvolatile Flavor Investigation/Processed Tobacco
PROJECT LEADER: W. R. Raymond
PERIOD COVERED: February, 1988

I. FLAVOR INVESTIGATION:

A. Objective: To provide analytical support for activities related to development and application of flavoring materials.

B. Results:

1. A method has been developed using multidimensional GC to quantitatively determine vanillin and ethyl vanillin on filler and in finished cigarettes. Refinements are in progress. The ability to determine vanillin and ethyl vanillin will provide corroborating data for the anethole method currently in use to determine A/C application levels. Determination of vanillin and ethyl vanillin in addition to anethole also should be of use in monitoring correctness of A/C preparation. The method has been tested with MF 85's and PM Blues.

2. Headspace analyses have been performed to compare A/C levels in MF Lts. Menthol cigarettes manufactured at SS and MC. Additional testing was performed of SS cigarettes made from SS- versus MC-produced filler. Filler samples taken throughout the MC and SS cigarette manufacturing processes also were examined to identify points of flavor loss. Results are undergoing evaluation.

3. Analyses of flavors and flavor ingredients included:

   a. Compositional comparison of four natural rum flavors;
   b. GC profiling and MS identification of components of three natural/artificial rum flavors and two samples of 04-257;
   c. Purity determinations for 20 flavor chemicals;
   d. Alcohol, water, PG, glycerine, anethole and vanillin analyses of MF A/C's and preblends for Project Grain;
   e. GC profiling of current A/C formulations for MF, Merit, B&H, New MF Menthol and Parliament;
   f. Vanillin, PG and glycerin analyses of a casing flavor for ART;
   g. GC analyses of three flavors undergoing storage stability testing.

4. Nontobacco materials analyses included:

   a. Headspace-GC analysis of MUL (new graphics) cartons, boxes and cigarettes to determine volatile transfer from packaging to product;
   b. Headspace-GC analysis of Merit tipping paper;
   c. Headspace-GC analysis of L&M Milds labels.
   d. Headspace-GC analysis of plastic boxes for Project FOX.

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II. NONVOLATILE FLAVOR INVESTIGATION:

A. **Objective**: To investigate tobacco-natural, tobacco-identical and other nonvolatile fractions and constituents for potential application as cigarette flavor additives.

B. **Results**:

No activity this month.

III. PROCESSED TOBACCO:

A. **Objective**: To develop basic and applied knowledge for the purpose of improvement or selective modification of subjective properties of processed tobaccos.

B. **Results**:

1. Analytical and subjective evaluations continued of roasted JONEX from three suppliers in order to develop purchasing and Q.A. specifications. Since results with the roasted extracts have shown considerable compositional and subjective variability, evaluation of native extracts is in progress to determine whether variability is a function of raw material or of processing.

2. Pilot RLB trials have been completed using dry flavor replacement materials from the various suppliers. Subjective selection of alternate flavors will be completed in March and followed by extended Park 500 replacement tests to confirm processing advantages.

3. Physical, chemical and subjective testing have been completed with ultrasonically-processed RCB. Analytical and subjective testing of control versus test RCB at standard blend levels in Marlboro cigarettes produced at SS showed no differences.

4. Evaluation continued with post-ART stem (both by direct incorporation in filler and substitution for stem in RL's). ART pilot trials with CRS versus FSS are being evaluated with DL filler. Subjective and analytical differences are being compared between top and bottom stem baskets. CRS from multiple ART runs is to be blended for IS trials at LVL in mid-March to test utilization in Marlboro and PMSL.

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